ROYAL ONTARIO MUSEUM ON ZOOLOGY
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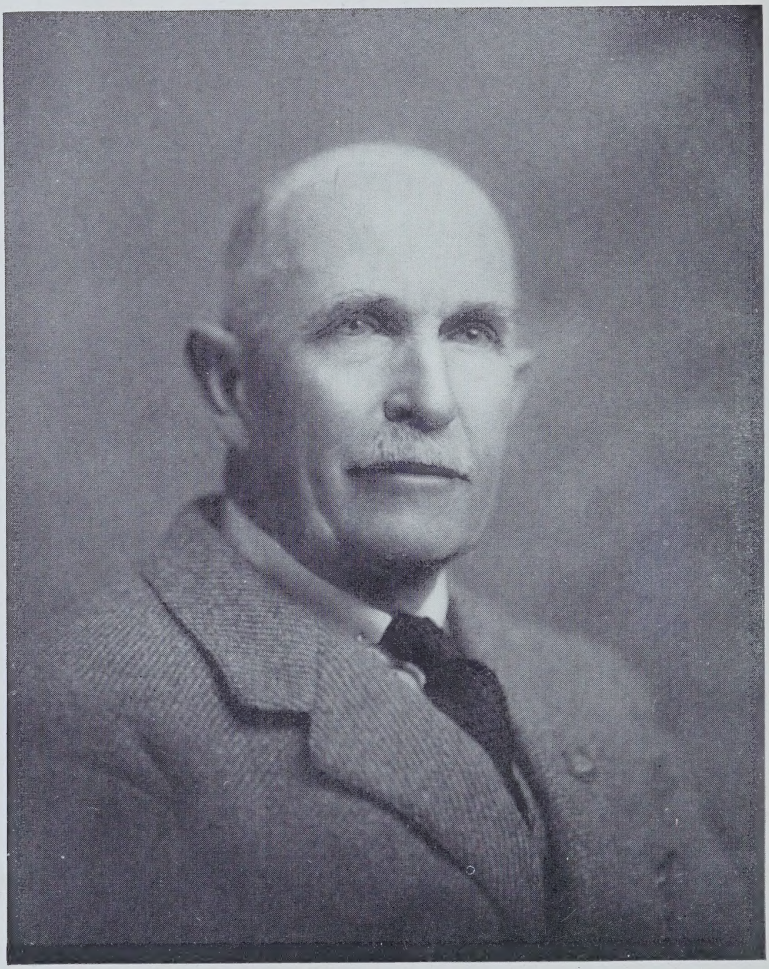
CHICKADEE AND WHITE-BREASTED NUTHATCH

This illustration of two of our commonest winter birds is reproduced from the original painting by Allan Brooks, which forms part of the Wallace Havelock Robb collection of Brooks's paintings in the Museum.



MAJOR ALLAN BROOKS, D.S.O.

Major Brooks, now recognized as one of the greatest of living bird artists, was born in India but came to Canada at an early age. He now lives at Okanagan Landing, B.C., in summer and at Comox, Vancouver Island, in winter. Major Brooks combines with his artistic ability a thorough scientific knowledge of bird life and is the author of numerous papers in the leading ornithological journals of England and America. Through the efforts of Mr. Wallace Havelock Robb the Royal Ontario Museum of Zoology now possesses a collection of 52 original paintings of birds of Eastern Canada by Major Brooks.

THE WORK OF MUSEUMS

THE modern museum which is fulfilling its function is a great educational institution for the public—a sort of people's university. It was owing to a recognition of the fact that museums were peculiarly adapted for certain phases of popular education that the movement for their establishment became so pronounced towards the close of the nineteenth century coincident with the movement for the popularization of knowledge.

But the popularizing of knowledge is not the only duty which museums recognize; they contribute an important share in the discovery of new knowledge. Their activities may therefore be summarized as (1) the acquisition and storage of materials and information, (2) the discovery of new knowledge, (3) the spread of knowledge, including publication and exhibition. Each of these lines of activity has many ramifications and involves a great deal of work of which the public has no direct knowledge. It is not generally known, for instance, that all properly organized museums have many times as many specimens in storage as on exhibition. The storage material is only in part a reserve supply for future mounting. Most of it forms the "study collection". The specimens in this collection are labelled with full information giving the place and date of capture and other information which future students may require. The arrangement, indexing, and care of study collections makes up no small part of the work of the curatorial staff. It is from the study of such extensive collections that new knowledge in ornithology, mammalogy, and other branches of natural science is derived. Studies in the field are, of course, necessary too, and these are obtained in part as a result of field surveys and from the observations of individual naturalists. Scraps of information from such sources as indicated above are carefully recorded and indexed and serve to build up the great body of natural history knowledge to whose advancement museums of zoology are dedicated.

Summer Field Work. Ornithological work was carried out during the past summer at Long Point, Norfolk County, Ontario, and at Ashbridge's Bay, Toronto. The results of these studies will be published in the Museum's Contributions series.

A museum expedition to southern British Columbia brought back practically complete collections of the amphibians, reptiles, and fresh-water fishes of that area. These are now being prepared for exhibition.

Results of Museum Surveys Published. The results of the museum's faunal surveys of the Lake Nipigon and Lake Abitibi regions have recently appeared. "A Faunal Investigation of the Lake Nipigon region,Ontario", including accounts of the mammals birds, reptiles, and amphibians appeared in the Transactions of the Royal Canadian Institute, Vol. XVI, Pt. 2. "A Faunal Investigation of the Lake Abitibi region, Ontario" included accounts of the mammals, birds, reptiles, amphibians, dragonflies, and spiders. It was published as Biological Series No. 32, University of Toronto Studies. The publication of the latter paper was made possible by a donation by William Robertson, Esq. Reprints of these two papers are being distributed by the Museum as Contributions Nos. 1 and 2 of the Royal Ontario Museum of Zoology.

Coloured Reproductions Popular. The coloured reproductions of Allan Brooks' bird paintings mentioned in the first number of the Bulletin have attracted a great deal of attention and been the subject of much favourable comment. In the opinion of many no finer series of bird reproductions have yet appeared in America. In view of the fact that both the original paintings and the reproductions are of Canadian creation such praise is particularly gratifying. To meet the demand for these reproductions the museum has had to have an additional two thousand sets printed.

The Passenger Pigeon. A little more than fifty years ago the passenger pigeon occurred in Ontario in flocks that are said to have darkened the sun as they passed. To-day the species is extinct, the last specimen, so far as known, having died in the Cincinnati Zoological Gardens in 1914.

As late as 1870 some of the old nesting sites in Ontario were still frequented by large numbers of pigeons, but the almost incredible flocks of which Audubon and Wilson wrote had gone long before that date. By 1880 the pigeon was very scarce in Ontario, but a few specimens lingered on until nearly 1900.

The Museum is now trying to bring together as much information as possible on the subject of the passenger pigeon in Ontario. The men who knew the pigeon in the days of its abundance are rapidly passing, and we are trying to secure such information as still exists in the memories of these men before it is lost forever. In this work the museum is dependent on the co-operation of its friends in putting it in touch with persons possessing the information desired, and any of our readers who know of persons likely to possess such information are asked to send us their names and addresses.

The Paul Hahn Collection of Passenger Pigeons. In addition to bringing together information about the passenger pigeon, the Museum is anxious to preserve as many as possible of the mounted specimens of this extinct bird. Quite a number have already been brought together, largely through the interest and generosity of Mr. Paul Hahn. Most of those that remain in the possession of private individuals will sooner or later be destroyed or lost. Many of those possessing mounted specimens have the idea that they are very valuable. They are valuable in the sense that they are irreplacable but they are not valuable in the sense that they can be sold for a great deal of money. The museum is not a commercial enterprise; it is the people's repository for the preservation of specimens, materials, and information of scientific and cultural value. For this reason we hope that persons having mounted specimens of the passenger pigeon will either donate them to the Museum or part with them at a nominal price.

WINTER BIRDS

When fall days have come and gone and the straggling rear guard of greened, greyed, and buffed bird migrants has left our woods and fields for the winter, it may appear that the bird student's year has ended. The out-of-doors will be bleak and

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cold and, compared with spring, the trail will seem utterly abandoned by wild life. Nowhere will one hear a constant flood of song, such as is so evident in spring when the mating impulse brings birds into full chorus. The few birds that are still with us have their activities reduced to a minimum. The pulse of nature is slowed to a sleeping tempo.

However, the bird student need not wait for spring and its host of colourful migrants. There are plenty of things to see in winter. In and about Toronto from fifteen to twenty species of birds may be seen on a winter day during a two or three-hour hike. In fact, if a notebook is kept, as should be done, one may find that forty different kinds of birds have been seen during a single winter. Considerably more than that number appear on the records of winter birds in the files of the Museum but, of course, these cover a period of more than forty winters.

TREE SPARROW

For the beginner the winter may be the best season for the reason that there are fewer species to learn to recognize. The bare condition of trees and thickets with the resultant increase of visibility is ideal for viewing the characteristic markings of birds and acquiring the deftness necessary in keeping such spirited objects as birds within the field of the binoculars.

In the study of ornithology the first requirement is to be capable of recognizing the various species of birds and to designate them by a generally accepted name. This knowledge is best obtained in the field and from books, although these sources may be supplemented by visits to the Museum. Additional information about birds—where and how they live—will come through increased familiarity with them in the field, one's powers of observation and deduction increasing through experience.

HORNED LARK

The segregation of the various kinds of birds by habitat boundaries will be noted early in the beginner's experience. The winter birds of Toronto illustrate this feature very well. They may be divided into four convenient groups.

Birds of the City Streets. The House or English Sparrow, which is so well known to everyone, is the only species which appears regularly and in numbers about the city streets in winter. It is a foreign bird which was introduced into North America in 1851, subsequently spreading to nearly every inhabited part of the continent. The Starling, another importation which was brought to the new world in 1890, is spreading rapidly and may be seen about certain sections of Toronto in winter and is almost certain to be a common bird of the city streets in the near future.

BROWN CREEPER

Birds of the Roadside and Scrubby Fields. Surrounding the city are many open plots and unpaved roads where weeds, bushes, and stunted trees afford protection and food to some kinds of winter birds. The Slate-coloured Junco may be seen there in flocks, feeding upon the ground and rising like wind-blown leaves to give their flash-signal—an instantaneous spreading of the tail exposing the pure white outer tail feathers. Here, too, may be found a flock of Tree Sparrows feeding among the bushes. The indistinct but ever-present dark dot on the centre of the grey breast is a convenient mark of identity. The Northern Shrike and the Horned Lark are other species which frequent such situations. The former appears as a black-and-white bird as it flies from one shrub to another. It is of especial interest since it kills and eats mice, although related structurally to the song birds. The Horned Lark, although a migrant, returns to our fields and

DOWNY WOODPECKER

waste lands before winter is over, and in February may be seen running over bare spots in the road or fields. Perhaps you may be favoured with its tinkling, musical song if the day is sunny and it feels so inclined.

Birds of the Woods. In the many wooded parks and ravines in and about Toronto one is certain of seeing or hearing several kinds of winter birds. The diminutive Brown Creeper may be found probing with its sharp, curved bill into the bark-crevices of trees, from base to bough, for insect eggs or "sleeping" pupae. Two species of woodpeckers, marked with black and white, may be found searching dead and infected trees and branches for grubs. The smaller, the Downy Woodpecker, is almost an exact replica of the larger, the Hairy Woodpecker; even their notes are similar except in volume. If you note a patch of red feathers on the back of the head of any individual it is the male of the species, the female having this colourful note omitted from her plumage. You may hear the boisterous cry of the Blue Jay, which needs no description other than its name, except that the feathers of its head form a crest. Another species which may be met with is the White-breasted Nuthatch. Its position, as it makes its jerky, zig-zag course, head foremost, down a tree trunk, may hide its white breast, but you will note the blue-gray back and the black top of its head. The Black-capped Chickadee may himself announce his name, "Chickadee-dee-dee" but, if you would solicit his intimacy, imitate his high-pitched whistle, "Pee-weedee", and he will leave his business of food-hunting and come down to see you.

BLUE JAY

OLD SQUAW

Birds of the Water Front. At Ashbridge's Bay, Toronto Bay, Exhibition Park, and at Sunnyside, open water is usually to be found in winter. Gulls and ducks find these places suitable

GOLDEN-EYE

winter resorts and consequently the bird student may add to his list by visiting the water-front. Herring Gulls, which are usually the most numerous birds in such places, are white with light, blue-grey backs and black outer wing feathers. Immature birds are dark greyish brown. Flocks of Old Squaw ducks, a long-tailed species which summers in the Arctic, may be seen swimming and diving in the icy water. The males are conspicuous with their white heads and necks marked with a dusky spot on each side. The females are less strikingly marked, but are usually associated with the males. Two other species of ducks may be noted quite commonly, the Merganser and the Golden-eye. The general colouration of the males of these two species may appear very similar at a distance, both being patterned with black and white, but the Merganser's dark head is unmarked and his bill is narrow, while the Golden-eye has a rounded white spot at the base of his typical broad duck bill on both sides of his proportionately large head. The females of these species, although both coloured with grey and brown, are not likely to be confused.

MERGANSER

L. L. S.

Aids to Bird Study. "Birds of Eastern Canada", by P. A. Taverner, a 300 page book illustrated with coloured plates and cuts, will be found very useful by anyone interested in bird study in Eastern Canada. It may be purchased from Mr. Wyatt Malcolm, Geological Survey, Ottawa, for fifty cents in board or one dollar bound in cloth.

Pamphlets on "Attracting Birds with Food and Water" and "Bird Houses and their Occupants" may be had, free, on application to The Canadian National Parks Branch, Department of the Interior, Ottawa.

The Spread of the European Hare in Ontario. The spread of the large European hare throughout southwestern Ontario is provid-

ing a good deal of sport in a region formerly almost destitute of game. This animal is generally called Jack Rabbit, an entirely erroneous and misleading name. Jack Rabbits are natives of western America, whereas this newcomer is a native of Europe and should be called the European Hare. It was first introduced at Brantford, Ontario, in 1912. In February of that year Mr. Otto Herold, then manager of the Bow Park Farm near Brantford, imported from Germany seven females and two males of the hare common to Central Europe (*Lepus europeus*). At first they were kept in an enclosure but they soon made their escape and within a few years had spread over quite a large area of southern Ontario. Recent inquiries conducted through the co-operation of the District Representatives of the Ontario Department of Agriculture and others show that this species now extends into Kent on the southwest, Bruce and Grey on the northwest, Simcoe on the north and Ontario County on the east. They are naturally commonest near the centre of introduction and in the counties of Oxford, Middlesex and elsewhere afford considerable sport in an area where previously the cottontail rabbit was almost the only game animal.

In some districts organized hunts are conducted throughout the winter, with the twofold object of sport and of keeping the species within reasonable limits numerically. Roger Hedley of Ilderton (Middlesex County), Ont., says that up to February 7th, 1928, 300 of these hares had been killed in an area of six square miles during the past winter and that many still remained. Later he reported that on Feb. 18th seven men hunting over an area of a little more than one square mile had killed 10 hares and had seen 80 others. Mr. G. R. Green, Agricultural Representative of the Ontario Department of Agriculture in Oxford County, reported that in East Nissouri township in organized hunts which are held each Thursday throughout the winter, 218 European hares had been killed by the end of December of last year and that 86 had been killed in the last drive. Similar hunts are carried out in many localities in the counties surrounding the area of original introduction.

Mr. Henry Howitt, writing in the "Canadian Field Naturalist" (Oct., 1925), described their habits when hunted as follows: "'Big Jacks' are usually found in fields, although when chased

by dogs they will often run through a wood, and from one wood across fields to another, possibly in an endeavour to get out of sight of the hounds, but I have never known one, when chased, to pause to hide in the shelter of the trees. To hit one which suddenly jumps up a few feet in front of you and rushes off like an express train requires more skill and coolness than to shoot a native hare (*Lepus americanus*) as it ambles leisurely along the aisles of cedar." He adds: "I have never known a dog to run down a 'big Jack,' which soon leaves the dog far behind."

This hare does not appear to have become seriously injurious to crops in Ontario as yet. The injury most commonly reported is that to fall wheat. They are said sometimes to eat off the plants in patches varying in size from one to several feet. Less often they are accused of girdling young fruit trees and in Welland they are said to be destructive at times to market garden crops. On the whole, surprisingly few complaints are heard against these hares on the ground of their destructiveness.

This animal also occurs in the eastern United States, where it was liberated on a number of occasions, one at least as early as 1888. There it has proved to be seriously injurious at times to young orchard trees. James Silver reported in the "Journal of Agricultural Research," Vol. 28, No. 11, that every tree in one orchard of 200 large five-year-old apple trees had been badly damaged, and it was estimated that the losses in Dutchess County alone during the winter of 1915-16 exceeded $100,000.

The European hare is a much larger animal than either our native hare or the cotton-tail rabbit, at times reaching a weight of twelve pounds or even more. Many regard them very highly as food. On account of their size and numbers the amount of meat represented by this hare in Ontario is considerable. Many of the animals killed in Ontario are eaten or sold in the towns and cities. Some are fed to poultry and foxes, but many are said to be left in the fields where they are killed. If there is a market for them it is a shame to permit any of them to be wasted.

J. R. D.

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ADMISSION

The Museum is open from 10 a.m. to 5 p.m. all week-days except Christmas Day and the morning of New Year's Day. It is also open Sunday from 2 p.m. to 5 p.m.

Admission is free Sunday, Tuesday, Thursday, and Saturday, and on all public holidays. On other days the admission fee is fifteen cents.

University students are admitted without charge on presentation of their registration cards.

All classes from the schools, art students, and study groups are admitted free.

Additional copies of this bulletin may be obtained, free, from the Department of University Extension, University of Toronto, Toronto 5, Canada.